SAFETY DATA SHEET

according to 1907/2006/EC, Article 3

Revision date: 30/03/2019

SECTION 1: Identification of the substance/mixture and of the company/undertaking.

1.1 Product identifiers

Product name	N,N-Dimethylformamide
Product Number	PSR36269
Brand	PureSynth research chemicals
CAS No.	68-12-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : PurSolv.

1.3 Details of the supplier of the safety data sheet

Company **PureSynth Research Chemicals Pvt. Ltd.**

A-27, A.P.I.E, Hyderabad, Telangana-500037

1.4 Emergency telephone number

Worldwide Helpline No.: 1800-120-1234-34

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 3), H226

Acute toxicity, Inhalation (Category 4), H332

Acute toxicity, Dermal (Category 4), H312

Eye irritation (Category 2), H319

Reproductive toxicity (Category 1B), H360D

Specific target organ toxicity - single exposure (Category 1), Eyes, Central nervous system, H370

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word Danger

Hazard statement(s)

H226	Flammable liquid and vapor
H312 + H332	Harmful in contact with skin or if inhaled
H319	Causes serious eye irritation.
H360D	May damage the unborn child

Precautionary statement(s)

P210	Keep away from heat, hot surfaces, sparks, open flames and Other ignition sources. No smoking.
P280	Wear protective gloves/ protective clothing/ eye protection/ face Protection/ hearing protection.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated Clothing. Rinse skin with water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable For breathing. Call a POISON CENTER/ doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
Supplemental Hazard Statements	none

2.3 **Other hazards:**

This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher. Rapidly absorbed through skin.

SECTION 3: Composition / information on ingredients

3.1 Substances

Common names & Synonyms	Mol. formula	CAS number
-	C_3H_7NO	68-12-2

Component	Classification	Concentration
N,N-dimethylformamide	Flam. Liq. 3; Acute Tox. 4; Eye Irrit. 2; Repr. 1B; H226, H332, H312, H319, H360D	<= 100 %

SECTION 4: First aid measures

Description of first aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled	After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.
In case of skin contact	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.
In case of eye contact	After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses
If swallowed	After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
Most important symptoms and effects, both acute and delayed	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Indication of any immediate medical attention and special treatment needed	No data available

SECTION 5: Fire fighting measures

Extinguishing media **Suitable extinguishing media**	Water Foam Carbon dioxide (CO2) Dry powder
Special hazards arising from the substance or mixture	Carbon oxides Nitrogen oxides (NOx) Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air at elevated temperatures. Development of hazardous combustion gases or vapors possible in the event of fire.
Advice for fire-fighters	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
Further information	Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures	Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, and consult an expert. For personal protection see section 8.
Environmental precautions	Do not let product enter drains. Risk of explosion.
Methods and materials for containment and cleaning up	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.
Reference to other sections	For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling	Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.
Conditions for safe storage, including any incompatibilities	Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.Recommended storage temperature see product label.
Specific end use(s)	Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls / Personal protection

Control parameters	No data available

Exposure controls	
Appropriate engineering controls	No data available.
Personal protective equipment:	
Eye / face protection	Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses.
Skin protection	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Body Protection	Flame retardant antistatic protective clothing.
Respiratory protection	Recommended Filter type: Filter A-(P2) The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
Control of environmental exposure	Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

Appearance	Form: Liquid, Clear Colour: Colourless
Odour	Amine-like
pH – Value	7 at 200 g/l at 20 °C
Density	0,944 g/mL
Boiling Point	153 °C
Melting Point	-61 °C
Solubility in water	1.000 g/l at 20 °C - completely miscible at 20 °C soluble
Flash point	57,5 °C - closed cup
Vapour pressure	3,77 hPa at 20 °C
Auto -ignition temperature	435 °C at 1.013 hPa - DIN 51794
Vapour density	2,52 - (Air = 1.0)
Flammability (solid, gas)	No data available
Evaporation rate	No data available.
Partition coefficient: n- octanol / water	Log Pow: -0, 85 at 25 °C - Bioaccumulation is not expected.
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 0,86 mPa.s at 20 °C
Explosive properties	No data available
Upper / lower flammability or explosive limits	Upper explosion limit: 16 %(V) Lower explosion limit: 2,2 %(V)
Oxidizing properties	No data available

Other safety information:

Relative vapour density	2,52 - (Air = 1.0

SECTION 10: Stability and reactivity

Reactivity	Vapor/air-mixtures are explosive at intense warming.
Chemical stability	The product is chemically stable under standard ambient conditions (room temperature).
Possibility of hazardous reactions	Violent reactions possible with: Alkali metals Halogens halides Reducing agents triethylaluminium nitrates metallic oxides non-metallic oxides Halogenated hydrocarbon Isocyanides sodium Sodium borohydride hydrides Oxidizing agents Oxides of phosphorus A risk of explosion and/or of toxic gas formation exists with the following substances: azides Bromine Chlorine chromium(VI) oxide potassium permanganate triethylaluminium chlorates Halogenated hydrocarbon with Iron
Condition to avoid	Heating
Incompatible materials	various plastics, Copper, Copper alloys, Tin
Hazardous decomposition products	In the event of fire: see section 5

SECTION 11: Toxicological information

Acute toxicity	LD50 Oral - Rat - male and female - 3.010 mg/kg (OECD Test Guideline 401) Symptoms: Gastrointestinal disturbance Acute toxicity estimate Inhalation - 4 h - 11,1 mg/l (Expert judgment) Remarks: (Regulation (EC) No 1272/2008, Annex VI) LD50 Dermal - Rabbit - 1.500 mg/kg Remarks: (Regulation (EC) No 1272/2008, Annex VI) (IUCLID)
Skin corrosion/irritation	Skin - Rabbit Result: No skin irritation - 20 h

	Remarks: (ECHA)
Serious eye damage/eye irritation	Eyes - Rabbit Result: Eye irritation Remarks: (ECHA) (Regulation (EC) No 1272/2008, Annex VI)
Respiratory or skin sensitization	Local lymph node assay (LLNA) - Mouse Result: negative (OECD Test Guideline 406)
Germ cell mutagenicity	Test Type: sister chromatid exchange assay Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Result: negative Remarks: (ECHA) Test Type: unscheduled DNA synthesis assay Test system: human diploid fibroblasts Metabolic activation: with and without metabolic activation Result: negative Remarks: (ECHA) Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Result: negative Remarks: (ECHA) Test Type: Micronucleus test Species: Mouse Cell type: Bone marrow Application Route: Intraperitoneal injection Result: negative Remarks: (ECHA) Test Type: dominant lethal test Species: Rat Application Route: Inhalation Result: negative Remarks: (ECHA) Test Type: dominant lethal test Species: Mouse Application Route: Intraperitoneal Result: negative Remarks: (ECHA) Test Type: Micronucleus test Species: Mouse Application Route: Intraperitoneal Result: negative Remarks: (ECHA)
Carcinogenicity	No data available
Reproductive toxicity	May damage the unborn child.
Specific target organ toxicity - single exposure	No data available.
Specific target organ toxicity - repeated exposure	No data available
Aspiration hazard	No data available
Additional Information	Repeated dose toxicity - Rat - male and female - Oral - 28 d - NOAEL (No observed adverse

effect level) - 238 mg/kg - LOAEL (Lowest observed adverse effect level) - 475 mg/kg
Remarks: Subacute toxicity
RTECS: LQ2100000
Vomiting
Diarrhea
Abdominal pain
Warning: intolerance for alcohol can occur up to 4 days after dimethylformamide exposure.
N, N-dimethylformamide is considered to be a potent liver toxin.
To the best of our knowledge, the chemical, physical, and toxicological properties have not
Been thoroughly investigated.
After absorption:
Headache
Dizziness
Drowsiness
Damage to:
Kidney
Liver
This substance should be handled with particular care.

SECTION 12: Ecological information

Toxicity

Toxicity to fish	flow-through test LC50 - Lepomis macrochirus (Bluegill sunfish) - 7.100 mg/l - 96 h (US-EPA)
Toxicity to daphnia and other aquatic invertebrates	(OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - > 1.000 mg/l - 72 h (DIN 38412).
Toxicity to bacteria	static test EC50 - Vibrio fischeri - 12.300 - 17.500 mg/l - 5 min Remarks: (ECHA).
Persistence and degradability	
Biodegradability	aerobic - Exposure time 21 d Result: 100 % - Readily biodegradable. (OECD Test Guideline 301E)
Biochemical Oxygen Demand (BOD)	900 mg/g Remarks: (Lit.)
Theoretical oxygen demand	1.863 mg/g Remarks: (Lit.)
Bio accumulative potential	No data available
Bioaccumulation	Cyprinus carpio (Carp) - 56 d At 25 °C - 0,002 mg/l(N,N-dimethylformamide). Bio concentration factor (BCF): 0,3 - 1,2 (OECD Test Guideline 305C). Remarks: Does not significantly accumulate in organisms.
Mobility in soil	No data available.
Results of PBT and vPvB assessment	This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at Levels of 0.1% or higher.
Other adverse effects	
Stability in water	- ca.50 d Remarks: reaction with hydroxyl radicals (calculated)(Lit.)

SECTION 13: Disposal considerations

Waste treatment methods Products	Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleansed containers like the product itself.
Contaminated packaging	Dispose of as unused product.

SECTION 14: Transport information

	UN no.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
ADR / RID	2265	N,N-DIMETHYLFORMAMIDE	3	III	No
IMDG	2265	N,N-DIMETHYLFORMAMIDE	3	III	No
IATA	2265	N,N-Dimethylformamide	3	III	No

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : N,N-dimethylformamide

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : N,N-dimethylformamide

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous Substances. : FLAMMABLE LIQUIDS

Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

The information in this SDS is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. The user must be determined suitability of this information for his application.